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THE SLEEP OF THE DORMOUSE, *MYOXUS GLIS*.

IN 'The Zoologist' for May, 1882, we gave a translation from the German of an interesting article on this subject contributed by Dr. A. Rabus to 'Der Zoologische Garten.' A further contribution to the subject by Prof. Forel has since appeared in the 'Révue de l'hypnotism,' and as this journal is not likely to come under the notice of many of our readers, they may perhaps be glad to see the article in question in an English dress. We have accordingly translated it, premising that while the observations of Dr. Rabus relate to our well-known *Myoxus avellanarius*, those of Professor Forel have reference to its congener, *Myoxus glis*, a common species in the South of Europe. Prof. Forel says:—

"While residing at Munich I was offered two Dormice, whose owner wished to get rid of them after having been bitten. He gave them to me in winter, and I was much astonished at not receiving them in a state of sleep. On the contrary, they were quite active—a circumstance which I attributed to the heat of the room. I put them in a large wire cage from five to six feet high, in the centre of which there was a small fir tree. I also allowed the little creatures the run of the room. Throughout the winter they continued lively and active, eating an enormous quantity of walnuts and hazel-nuts. As soon as one of them had laboriously gnawed one through, the other came stealthily and tried to take it away from him. They were always spiteful, ever ready to bite. After having been fed all through the spring they became very

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fat, and I was not a little astonished to see them one after another, in the month of May, fall into their lethargic sleep, which, according to all I had read in books, ought only to have occurred in winter under the influence of cold. They became as slothful as little bears—their movements got slower and slower; finally they squatted in a corner and became completely lethargic.

“In this condition their temperature became lowered, their respiratory action became slower, and their lips presented an ashy appearance. The little animals, placed in the open air, and at first more or less rolled up, ended by remaining half extended on their backs; nevertheless on being pricked they made certain reflex movements, especially a feeble grunting or whistling, and by dint of exciting them I was able for a moment to instil a little life into them. But as soon as I left them quiet they relapsed into their lethargy. I then made a rather curious experiment: I took one of the Dormice and placed it on the top of the little fir tree in the middle of the cage. Although it was asleep it was sufficient to make it touch a slender branch with the plantar surface of its paws to excite a reflex contraction, which made it grasp the branch which it would instinctively have done if awake. I then let go, leaving him thus suspended to his branch. He relapsed by degrees into somnolency. The muscles of the grasping paw slowly relaxed, the plantar surface extended began to hold the branch only at its extremity near the claws, and I feared my Dormouse was going to fall; but at the moment of losing its equilibrium a sort of instinctive spasm shot through its nervous system, and another paw seized the lower branch next within reach in such a way that the animal only came down a peg. Then the same performance was repeated. The Dormouse relapsed into sleep at first, the foot slowly relaxed its hold up to the moment of letting go, when the other paw caught hold of a lower branch; thus it descended, sleeping without falling, the whole way down the fir tree from top to bottom, until it reached the floor of the cage, where it remained in a state of lethargy. I repeated the experiment several times with the two Dormice, always with the same result; neither of them ever allowed itself to fall.

“The sleep of these Dormice—occasionally interrupted by a day or a few hours awakening, more or less complete, during

which time they ate a little—lasted the greater part of the summer, and by degrees entirely ceased in the month of August: they had slept throughout the greatest heat of June and July. Towards the end of this lethargic sleep they became considerably attenuated, though less so, however, than one would have expected. Their body temperature taken during their lethargic sleep was from 20 to 22 degrees centigrade.

“From these facts it clearly results that the so-called winter-sleep of the Dormouse cannot be directly due to the lowering of its temperature; perhaps the state of their nutrition—the amassing of fat in their tissues—is the cause, or one of the principal causes. But it seems that this condition, whatever its cause, is akin to catalepsy and hypnotic sleep. On this account it seems to me that the study of hypnotism in the Dormouse possesses considerable interest, and I should be glad if the perusal of these remarks were to give rise to further useful experiments.”

ORNITHOLOGICAL NOTES FROM OXFORDSHIRE IN 1886.

BY OLIVER V. APLIN AND A. H. MACPHERSON.

JANUARY.—On the 2nd, besides fifty or sixty Mallard and Duck, sixty-five Pochards and five Tufted Ducks were seen upon Clattercutt Reservoir. A male Merlin was shot close to Oxford in the early part of the month. Sparrowhawks were common throughout the winter about Oxford, when they might almost be called winter visitors, as they are very scarce in summer. A variety of the Song Thrush, having the top of the head pure white, was shot on Headington Hill, and is now in M.'s collection. A male Lesser Spotted Woodpecker was shot at Great Bourton on the 9th. A Coot, frozen out, was captured in a garden on the outskirts of Banbury on the 21st. A grey Goose of some kind was seen flying over Banbury on the 23rd. A large flock of Fieldfares at the end of the month frequented the vicinity of Clattercutt Reservoir, coming down to drink at one or two unfrozen holes, the ice around being considerably discoloured by them. A rather light-coloured Short-eared Owl, the only one heard of during the winter, was shot near Wroxton on the 27th. Some very large flocks of Wood Pigeons were observed in the

north of the county at the end of the month; on the 30th, two flocks winging their way to roost in the Aynhoe Woods must have numbered two hundred each.

FEBRUARY. — A very dark-coloured male specimen of the Common Buzzard was trapped at Horton on the 5th. A male Bittern was shot at Merton on the 8th. A Waxwing was seen by Mr. W. Wyatt on the outskirts of Banbury on the 13th; he was able to get pretty close to it, and watched it for some time; Mr. Wyatt is well acquainted with the bird, having preserved two or three specimens. A specimen of that unusual visitor to Oxfordshire, the Dipper (now in F. C. A.'s collection), was shot by a small stream in the northern extremity of the county, near Farnborough, on the 20th. A pied variety of the Jackdaw was shot near Oxford this month. On the 9th, in a flock of about seventy Ring Doves near Oxford, M. saw one apparently nearly pure white. Throughout January and February Bramblings were unusually numerous about Oxford; a very richly-coloured specimen was shot there at the end of the latter month, which had almost assumed its full spring dress; another had its flanks of a reddish orange; the earliest we heard of was shot in the north of the county on January 10th; about the end of February a boy took forty in his bat-fowling nets near Wroxton.

MARCH.—The weather was excessively severe during the first half of the month, and all the Thrushes suffered greatly, but none so much as the Fieldfares; numbers of these were caught by the hand—too weak to fly. The supply of haws being exhausted, and the few remaining being in a dry and shrivelled condition, the birds had great difficulty in obtaining food; one shot on the 6th had been feeding upon half-rotten swedes in the sheep-pens, and the whole bird, the intestines especially, was thoroughly impregnated with the smell. During the summer, when looking for nests, it was quite a common occurrence to find the remains of a Fieldfare in the middle of the hedge. About 150 Bramblings were killed at three shots near Balscot in the first days of the month. Three birds received by A. from that place, shot on the third, had lost nearly all the brown feather-edges of winter; one had a black chin; two more were shot at Wroxton on the 4th. Mr. W. W. Fowler informs us that four Curlews were seen close to the village of Kingham about the 12th of the month. One Hooded Crow was seen by M. feeding with some Rooks in

Christchurch Meadow on the 13th. Two days after, one was shot about six miles from Oxford, and a third was killed near Banbury on the 30th; this is an usually late date for them to linger in Oxfordshire. A Great Crested Grebe in full nuptial dress was killed on the Isis at Sandford on the 7th; they were delayed by the ice from returning to Clattercutt Reservoir until the 28th; in mild seasons they appear a month earlier. Tufted Ducks having been frozen out since the early part of January (the ice bearing skaters up to the middle of this month), a male and female put in an appearance on Clattercutt on the 28th; they were evidently paired, the drake closely following his partner with an air of proud proprietorship; and it was hoped that they might remain to breed, but they disappeared shortly after.

APRIL.—A male Ring Ouzel was shot on Headington Hill early in the month. A pair of Nuthatches were observed by A. on the 14th, carrying nesting materials into a hole about thirty-five feet up in the trunk of an elm tree on Bloxham Grove, from which he had eggs more than twelve years before; the clutch of seven fresh eggs were taken at the end of the first week in May. Mr. W. Fowler observed a pair of Pied Flycatchers in a field studded with trees at Kingham on the 24th. On the same day a beautiful example of the Lesser Tern was shot close to the barges on the river at Oxford. One Black Tern was shot, on the 30th, on the canal above Banbury. On the night of the 24th a Nightingale flew against a window in Banbury, and was picked up dead. A Hoopoe was seen at Elsfeld on the 26th.

MAY.—We are able to record the third occurrence of the White Wagtail in the county, M. having observed one on the river-bank above Oxford on the 4th. A specimen of the Common Sandpiper was observed on the bank at Clattercutt on the 1st, but had disappeared the next day. On the river above Oxford four were seen on the 4th; they make but a very short stay with us at this season. The Turtle Dove was observed at Great Bourton on the 8th by both recorders; this is an early date for its arrival. Hirundines suffered greatly from the stormy weather in the second week (*vide* Zool. 1886, p. 300). An adult Black Tern was shot on the river at Oxford on the 7th. A female Whimbrel was killed at Thame on the 21st; although of not very uncommon occurrence upon the spring migration, it is extremely rare in autumn. On the 17th a curious light variety of the

Yellow Bunting was shot close to Oxford. An immature Lesser Black-backed Gull was shot on Port Meadow, Oxford, on the 12th. On the same evening a flock of Gulls, all immature and either *L. fuscus* or *L. argentatus*, passed over Oxford, flying north, high up. Heavy rain fell on and off from the 11th until the 14th; wind N.E., backing to N.W.; very large floods in the valleys. Mr. Warner reports that during a stormy week in May (probably the second) a flock of the Common Tern was noticed at New-bridge in company with Swallows and Martins, playing about over the surface of the water for a day or two. M. saw one in the distance at Oxford on the 12th, and a flock of eight were seen on the upper river near Godstow about the end of the month.

JUNE.—One specimen of the Lesser Tern was seen by M. flying about over the river above Oxford on the 2nd. Four immature specimens of the Common Gull were seen flying over Port Meadow on the 19th. On the same day two large Gulls, either *L. fuscus* or *L. argentatus*, were flying over the river at Sandford; weather cold, with wind in the east about this time. M. saw a Grey Wagtail on the banks of the Cherwell near Islip on the 26th; it is extremely rare with us in summer. Although common enough in the reed-beds of the Cherwell at Oxford, and spreading thence into the thickets and bushes of the "Parks," the Reed Warbler is decidedly rare in the north of the county. On the evening of the 27th A. heard one singing in a large bed of rushes at the upper end of Clattercutt, and in July detected its presence also in an osier-bed on the Swere where it flows into the Cherwell. A pair of Grasshopper Warblers probably nested in the mowing grass of a meadow between Bourton and Hanwell, as the male sung there nightly; they are found annually on the small remaining portion of Hanwell Heath, a short distance off. A pair of Bullfinches, forsaking their usual habit of seeking solitude in the breeding season, nested this year in a belt of thick yew trees which border a much-frequented path in Mr. F. C. Aplin's garden at Bodicote, within a dozen yards of the house.

JULY. — Mr. W. Fowler having seen a Red-backed Shrike at Kingham on the 8th, made a careful search for pellets, and found among other things two portions of the shrivelled skin of a Water Shrew (*S. fodiens*), each forming a complete ring. Mr. Warner reports that, on the 13th, a young specimen of the Long-eared Owl was seen in broad daylight perched on a fence near Stanton

Harcourt; as a resident it is decidedly rare with us. Two examples of the Egyptian Goose were shot near Cowley about the middle of the month; they had doubtless strayed from some ornamental water; though Mr. Darbey, from whom we received the information, could hear of none missing at that time, and found no marks of confinement on them. A white variety of the Swallow, a young bird, was shot at Hampton Doyle early in the month.

AUGUST. — A female Wheatear was seen by A. near Banbury on the 13th; may possibly have nested in the district, migrants being seldom seen until the first or second week in September. At the close of summer the disastrous effect upon Swallows and Martins of the cold stormy weather in May could be clearly traced in the small numbers to be seen in the air after the second broods had flown, and when in an ordinary year they should have swarmed.

SEPTEMBER. — When shooting near Nell Bridge this month, we noticed a large nest placed in one of a row of four trees in the meadows. The tenant told us that a pair of Herons came and built it just before haymaking time (end of June), and that being disturbed when the grass was cut, they left, but returned when the fields were quiet again; no young seem to have been hatched. There is no heronry in the neighbourhood, but the birds are constantly to be seen about there. The first Snipe was seen and shot there on the 13th. The Common Sandpiper was observed on the Cherwell near Nell Bridge on the 15th. A Hooded Crow was shot at the beginning of the month at Oxford; this is an early date for it to arrive in the county, and, considering that examples were observed up to the end of March, it seems possible that the species may have bred in the Midlands this year. A specimen of the Redshank was shot at Chorton, near Islip, in the early part of the month. An interesting variety of the Corn Bunting was shot at Marsden; it had evidently been entirely white, and was killed in the middle of its autumn moult while reverting to its normal plumage; a few normal feathers showed on the breast, and some of the new primaries had appeared; the majority of the new tail-feathers had also come in; the old primaries and rectrices were very much worn, and quite "hairy"; it is now in M.'s collection. A white variety of the Linnet tinged with buff was also shot during this month at Hinksey, and is now in M.'s collection.

Two varieties of the Stock Dove were shot on Shotover Hill, near Oxford, about the first week in September; one, a very pretty variety, mottled with cream-colour, has been described in 'The Field' (October) by Mr. J. Whitaker, in whose collection it now is; the other had nothing abnormal about it, except its primaries and rectrices, which were of a nut-brown. A Curlew was shot at Heyford during this month. A clutch of ten fresh eggs of the Quail was taken at Standlake at the end of the month.

OCTOBER. — Mr. Warner informs us that a Wheatear lingered until the early part of the month, and was seen by him at Standlake. A Redwing arrived in North Oxon on the 9th, and a Fieldfare at Oxford on the 21st. A male Grey Phalarope, in M.'s collection, was shot at Bletchingdon on the 18th. The Brambling was first seen on the 30th near Oxford. During the second week in the month large numbers of Common Terns visited Oxford, and many of them were shot. On the 26th, M. saw a Sedge Warbler close to the river above Oxford; it tried to sing, but could only manage a few notes, and looked the picture of misery, as the wind was very cold. A beautiful variety of the Ring Dove was shot near Banbury on the 27th, having been observed about the place since the previous winter, when it accompanied a large flock. The mantle and wings are dove-coloured, mottled with a little white; primaries light brown, marked with white; tail brownish; lower back a delicate lavender, otherwise normal. The man who shot it said it looked almost white on the wing. It is now in Mr. Whitaker's collection. At the end of the month we had a considerable flight of Snipe, about forty full birds and two Jacks being flushed from one or two meadows at Nell Bridge; two days after, they had all departed. Large numbers of Peewits on the 20th, and the meadows black with Starlings. Some Teal also at that time. Two Pochards had arrived at Clattercutt on the 30th, on which day a Crested Grebe was seen in full winter dress.

NOVEMBER. — A drake Shoveller was shot on Otmoor on the 12th, where a good many Teal were bagged in the middle of the month.

DECEMBER. — A fine male of the white variety of the Pheasant (with normal irides) was shot at Elsfield on the 21st. A fine adult male Goldeneye and two in brown plumage, together with twelve Tufted Ducks, four Pochards, and some thirty or forty Wild Ducks, were seen on Clattercutt on the 11th.

THE PEARL FISHERIES OF AUSTRALIA.*

BY G. W. GRIFFIN,
U.S. Consul, Sydney, N.S. Wales.

THE pearl-shell fisheries of Torres Strait belong to the colony of Queensland, and are situated 1500 miles from Brisbane, and more than 2000 miles from Sydney. Torres Strait is about eighty miles in width, and separates Queensland from the island of New Guinea. The navigation of the Strait, although said to be safe and practicable, is in fact very difficult, on account of the innumerable islands, reefs, and shoals scattered about. The chief places at which the fisheries are conducted are Wai Weer, Albany Island, Jervis Island, Endeavour Strait, Friday Island, Prince of Wales Islands, and Possession Island.

WAGES OF THE MEN.—A good diver can earn from sixty to one hundred and fifty dollars per month. He usually signs shipping articles for a period not exceeding three years, at a fixed sum per month and an interest in the catch or lay. Mr. Bayne, of Sydney, the owner of an important station at Prince of Wales Islands, who for many years has been engaged in pearl-shell fishing, states that several divers in his employ have earned as much as three hundred dollars per month. The divers and crews are composed of South Sea Islanders, Malays, and a few Chinese and Lascars. The diver is the captain of the boat, and the other men obey his orders. The duties of the tender consist in waiting on the diver, helping him to dress, and looking after him while in the water. The pay of the tender is from ten to twelve dollars per month, with a small interest in the catch, generally from one-sixtieth to one-eightieth part of the value of the shells. Each of the vessels generally has one diver and four tenders, who compose the crew. The tenders are engaged on regular shipping articles, and are paid off like any other merchant seamen. Mr. Henry M. Chester, the resident magistrate at Thursday Island, says, in a recent report on the fisheries, that the natives are never overworked, and that they are always well fed and kindly treated. He further says that payment is usually made them in blankets, clothing, knives, hatchets, and beads, and that whenever they are

* Reprinted from the 'Bulletin U.S. Fish Commission,' vol. vi. (1887), pp. 433—435.

dissatisfied with what they receive they seek other employment. Mr. Chester is of opinion that the competition for their services is of such a character as to secure for them fair treatment. All the available adult population of the island are employed as swimming divers, under the "Masters and Servants Act," and while their pay is small, it is made in the presence of the local authorities, and all the old men, women, and children receive food in seasons of scarcity. Mr. Chester admits, however, that the occupation of a diver is dangerous, and not at all conducive to longevity, but adds that the loss of life among the natives from such causes is more than counterbalanced by the abundant supply of wholesome food given them, and by the decrease in infanticide and other savage practices to which they were formerly addicted.

METHODS OF FISHING.—The method pursued in pearl fishing is for a number of vessels to start out together and fish on the same ground. Each vessel carries supplies to last a fortnight. When in about eight fathoms of water, if the tide is slack, the diver will jump overboard. His boots are heavily weighted with lead, so as to hasten his descent. Upon reaching the bottom he walks leisurely along until he comes to a patch of shells; then he signals to the boat to cast anchor. He carries with him a sack or bag to hold the shells, and as soon as it is filled it is lifted up, emptied out, and sent down to him again, he being able to remain under water several hours at a time. Some divers remain down from nine o'clock in the morning until five in the afternoon. The Pearl-oysters lie on the ground, with the shells partly open, and great care is required in handling them, for if touched in the wrong way they will close upon the hand like a vice. Accidents of this kind not unfrequently happen to inexperienced divers, who are obliged to signal those above to lift them up and remove the Pearl-oyster from their hands. The monsoons which blow in the Strait from May until the end of September are often so severe that boats have to lay up for as much as ten days at a time. The average catch for each boat is from one ton to a ton and a half shells per month. Unlike the fisheries in Ceylon and the Persian Gulf, there is little or no difficulty in collecting the shells, for they either lie loose on the ground or are only partially buried in the mud or sand. The fisheries off the coast of West Australia, and especially at Shark Bay, produce

the true Pearl-oyster, *Avicula margaritifera*. For a long time this shell was supposed to be valueless on account of its thin and fragile structure, but now there is a great demand for it both in America and in Europe. It is especially prized by the French and German artists for fine inlaid cabinet work. The young or chicken shell is the best, and commands the highest price. When the Pearl-oyster is five or six years old the shells become blistered and wormy, and it is said the oyster dies about the age of seven years. The divers in fishing make no effort to select any particular shell, but take every one that they can get, even the dead shells, which have the least value of any, on account of various blemishes, rottenness, lack of lustre, &c. Pure-white silver-edged shells are the best. The oysters in the West Australia fisheries are generally obtained by passing an iron dredge over the banks, but divers are also employed. Pearl-oysters are gregarious in their habits, and whenever one is met with it is almost certain that numbers of others will be found in the immediate neighbourhood. Divers are expert swimmers, and they go down to a depth of four or five fathoms, where it is said some of them can remain two minutes. The occupation is an unwholesome one, and soon produces deafness and diseases of the chest and lungs. Blood not unfrequently flows from the mouth, ears, and nostrils after the usual dip of forty or fifty seconds, which is repeated fifty or sixty times a day. The men also run the risk of being eaten by Sharks, although death from this cause is not apt to occur except in untried fishing-grounds, as the noise of the divers is almost certain to drive the Sharks away.

THE PEARL STATIONS. — All the pearl-fishing stations in Torres Strait bear a close resemblance to one another, and consist of a small but nice-looking residence for the manager and one of less pretension for the men, a warehouse for storing provisions, &c., and several sheds for drying the shells. Before the shells are brought to the station the boats usually run into land, and the men open the oysters, take out the pearls, if any, and throw the soft parts overboard. The shells are then roughly cleaned and stowed under the hatches. At the end of the voyage they are taken to the station, where they are counted and thoroughly cleaned. The shells are then assorted and dried, and after the outer edges are chipped off they are packed in cases,

each case weighing from 270 to 300 pounds, and are ready for shipment. No systematic effort has yet been made to collect pearls at Torres Strait, and such as are found become the property of the men, who secrete them in various ways, often by swallowing them. Some very fine specimens of pearls about the size of a hazel-nut, and of remarkable beauty and clearness, have recently found their way to the market from Torres Strait. Other specimens of a much larger size have been found there, but they were imperfect in shape and colour.

FORMATION OF PEARLS.—In oysters aged four years—which are judged by the shells, weight, and appearance—the best pearls are found. The shell, like the pearl, is formed by the secretion of the animal, and is composed of animal matter and lime. The iridescent hues on the inside of the shell are occasioned by the edges of the thin, wavy, concentric layers overlapping one another and reflecting the light. The minute furrows, containing translucent carbonate of lime, produce a series of more or less brilliant colours, according to the angle at which the light falls upon them. Occasionally some of the finest pearls are found loose in the shell. As many as one hundred pearls have been found in one oyster, but of little or no value. The pearls of the young oyster are yellow, and in the older oyster are of a pinkish hue.

THE USE OF PEARL-SHELLS.—The pearl-shells shipped from Australia to the United States and Europe are used principally for the manufacture of knife-handles, shirt-buttons, &c. Considerable quantities are also used for papier-maché and other ornamental work. The pearl buttons, shirt-studs, &c., now made in the United States are said to be the best and cheapest in the world—a fact due in great measure to the care used in selecting the material and to the improved methods of cutting.

NOTES AND QUERIES.

To purify Water in an Aquarium.—In fresh-water aquaria the introduction of a few pond-snails (such as *Planorbis corneus*, *Paludina vivipara*, *Limnæa stagnalis*, *L. auricularia*, &c.), which scour the inner surface of the glass, is tolerably effective; but a better plan is suggested by a writer in the 'Norsk Fiskeritidende,' who recommends that to every 100 grammes of water there should be added 4 drops of a solution of 1 gramme of salicylic acid in 300 grammes of water. A gramme is equal

to rather more than 15 grains (apothecaries' weight), 480 grains to the ounce, and as a gallon of water weighs 10 lbs. or 70,000 grains, we get 1500 grs. : 70,000 grs. :: 4 drops : 186 $\frac{2}{3}$ drops; or, roughly speaking, we may add for every gallon of water in the aquarium 186 drops (or one dessert-spoonful) of the solution recommended. This recipe, it is said, will keep the water fresh for three months without renewal.

MAMMALIA.

The Cost of Rabbit Destruction in Australia.—The Hon. J. Salamon recently stated, in the Legislative Council of Sydney, that up to that time 7,853,787 Rabbits had been destroyed and paid for at a cost of £361,492. This represents the very large sum of 11 $\frac{1}{2}$ d. per rabbit, and, adding to this a proper proportion of the bonuses paid by stock-breeders, farmers, and others, each Rabbit killed is found to have cost about 1s. 3d. In other words, it costs as much, or more, to kill a Rabbit in Australia as to buy one in England.

On the Bats found in Merionethshire.—The following notes on the Bats inhabiting this part of Merionethshire may prove useful to those who are interested in the distribution of the British species. Up to the present time I have obtained specimens of six species, five of which occur more or less commonly, though none of them are very abundant. The sixth, the Lesser Horse-shoe Bat, is very sparsely distributed, although it can scarcely be called rare.

(1). *Vesperugo noctula*.—The Noctule is a common species, although it seems not to have been previously recorded from any part of Wales. It frequents most of the wooded parts of the district, especially such as have the hill-sides covered with oak trees. I have observed it plentifully in fine weather flying over the extensive marshes near Port Madoc.

(2). *Vesperugo pipistrellus*.—This bat is not nearly so abundant as in most parts of England, and, except in the immediate vicinity of houses, is probably outnumbered by several other species. Although the smallest of the British bats, the Pipistrelle frequently preys on rather large insects; the crane-fly, *Tipula oleracea*, commonly known as "daddy-longlegs," apparently forms a considerable portion of its food.

(3). *Vespertilio daubentonii*.—This is a common species in those localities where it occurs; but, from the nature of its haunts, it might easily be passed over unless specially looked for. It frequents pools of stagnant water, or slow-running rivers, giving a decided preference to the latter. On any still warm night it may be seen flying slowly and steadily as close as possible to the surface of the water, into which it frequently dips its nose, probably for the purpose of taking some floating insect. The cry of Daubenton's Bat is very weak and shrill, sometimes prolonged into a sort of chatter.

(4). *Vespertilio mystacinus*.—The Whiskered Bat is probably the most abundant species in this district, being found in all sorts of situations, in company with the Pipistrelle, which it very much resembles in some of its habits. It differs considerably, however, in its choice of a hunting-ground and in its flight, which is slow and steady as in *V. daubentonii*. The Whiskered Bat comes abroad earlier in the evening than the last-named species, and usually selects for its hunting-ground the sheltered ends of a high hedge or plantation, or even a cliff, along which it flies to and fro, seldom rising as high as the tops of the trees or rocks nearest to it. When crossing an open space it generally keeps close to the ground. I have never observed this species frequenting the open places in woods of which the Pipistrelle is very fond.

(5). *Plecotus auritus*.—Next to *V. mystacinus* this appears to be the commonest bat in the district. Early in April last I observed a number of Long-eared Bats frequenting a group of three tall silver-fir trees standing close together among stunted oak and hazel bushes. On warm nights these trees appeared full of bats, sometimes flying with the greatest rapidity through the branches and sometimes hovering like great moths at the extremities of the twigs. On going underneath the trees the bats presented a still more curious sight: generally upwards of a score might be seen moving about in the space of a few feet. They appeared frequently to come in contact with the branches, but whether by accident or not I was unable to ascertain. [They were doubtless taking insects off the leaves.—ED.] One which I shot at this place had a small leaf of the silver-fir in its mouth. The food of the Long-eared Bat consists chiefly of moths, and I believe small caterpillars are also taken by it.

(6). *Rhinolophus hipposideros*.—The Lesser Horse-shoe Bat, though generally distributed, is by no means a common species. It is apparently strictly nocturnal in its habits, never coming abroad till it is quite dark, and I can only recall one or two instances in which I have seen it on the wing. During the day it may be seen hanging from the roofs of caves and houses, always in the darkest part. I once saw several bats of this species in the lower level of an old lead-mine, to gain access to which they must have descended a shaft fifty feet deep into an upper level, and after traversing this, have passed through a small hole in the floor to the place where I found them. On the few occasions on which I have seen this bat abroad it was flying slowly close to the ground, somewhat in the manner of *V. mystacinus*.—G. H. CATON HAIGH (Aber-ia, Penrhyndendraeth, Merionethshire).

BIRDS.

Cliff-birds at Dover.—During the first week of July the fine chalk cliffs between Dover, the South Foreland, and St. Margaret's Bay, present a very animated appearance. Hundreds of Herring Gulls are nesting there,

and the young ones may be seen about their nests, attended by the parent birds. For some reason or other—probably for the want of suitable ledges—the Herring Gulls do not appear to nest on the abrupt faces of the cliffs, but in spots where land-slips have occurred, and where slopes more or less covered with verdure, but at a very steep incline, have formed amid the cliffs. In selecting such breeding-places the Herring Gulls have, as might be expected, selected the more inaccessible slopes, and as far as I could judge, walking below the cliffs, I did not notice any occupied nesting-places that an ordinary rock-climber should attempt without the aid of a rope from above. Great mortality occurs amongst the young gulls from the nests being placed on these steep inclines, for the young tempted from their nests lose their foothold on the slippery grass, and slide and fall on the beach below, where they are abandoned by the parent birds. In the first week of July, this year, my companion and I counted over fifty dead young ones in the course of our walk along the base of the cliffs, and we saw two young Herring Gulls lose their foothold and come down, trying to save themselves with expanded feet and their little apologies for wings extended; they reached the beach in safety, where we secured them, took them home, and they are now flourishing in my companion's garden. There is, however, one exception to the general rule of these gulls breeding on the cliff-slopes, and that is a few pairs making their nests on the gravel beach at the very base of the cliffs just above the line of ordinary high water. The spots available are very few and restricted in area, and as they can be reached at low-tide these nests are invariably plundered of the eggs. My companion informed me that during the past seven years he had on several occasions taken eggs from these nests on the shore. He is inclined to think that the very great increase in the number of the Herring Gulls since the Wild Birds Preservation Act came into force has led to the crowding of the securer breeding stations, and that the gulls that nest on the beach are the younger ones which have been unable to find nesting room in the safer positions. It was satisfactory to learn, from my companion's personal observation, that the number of Herring Gulls had largely increased during the past ten years. I should estimate roughly that not less than four hundred pairs of Herring Gulls nest in the cliffs between Dover and St. Margaret's Bay. To ornithologists who reside in the neighbourhood of London, and who may not have the opportunity of visiting the more distant great rock nurseries of sea-fowl along our coasts, I recommend a visit to these cliffs, but care must be taken to time it with due consideration of the tides, for a mistake might lead to an awkward predicament, as at high-water the sea rises to the cliff, except in a few spots where some of the gulls, as I have already mentioned, make their nests on the gravel. A visitor to the cliff immediately below the South Foreland Lighthouses will be further gratified by finding that a considerable colony of

Guillemots make it their breeding-station. It is a very bold perpendicular headland, and I should consider to be only accessible to experienced cragsmen with proper appliances. To stand below this cliff and watch the Guillemots shoot down from their lofty ledges to the sea is a very pretty sight. My eye could not discern any movement in their wings; the feet stretched out behind seemed to be the guiding power. I picked up one little downy black young one at the base of the cliff, which shows that the Guillemots breed there. A pair of Peregrine Falcons nest in the cliffs between Dover Castle and the South Foreland, and have, I believe, reared their young in safety this season. It has been a frequent source of pleasure to me during the past spring to visit these falcons' breeding-place, as I invariably saw one, sometimes both birds. The tiercel was wont to resent my intrusion, by flying overhead and screaming querulously; at times he would "wait on" within forty or fifty yards of me. These birds have shown me some good flights at pigeons this year. I was at first somewhat puzzled where these pigeons came from, because all I saw flown at were evidently home bred birds, and the falcons always intercepted them as they were flying over the Channel. Placed on the edge of the cliff, I have watched a pigeon flying with steady rapid flight over the Downs, heading southward across the sea. As the pigeon passes over the cliffs the falcon dashes out seaward from under the cliff, the pigeon sees its enemy and rises high in air, the falcon mounts as well; to the inexperienced eye the hawk appears to be flying in an opposite direction to the pigeon, but when he has gained the proper altitude down he swoops like a bolt from the sky, but the pigeon eludes him by dropping with incredible rapidity to the sea. Again the falcon rises, its evident intention being to drive the pigeon to the shelter of the Kentish cliffs; the pigeon, seeing its course across Channel barred by its mortal foe, seeks the shelter of the undercliff. The falcon now has it all its own way, and the wings and skeletons of pigeons which I have found at the base of the cliffs show what heavy toll the Peregrines levy on the Belgian and French homing-pigeons returning to the Continent; for in several instances I found the name of the owner stamped upon the inside of the primary wing-feathers of the pigeons, which proved to be trained birds belonging to Belgian owners.—H. W. FEILDEN (Dover).

Ornithological Notes from Mayo and Sligo.—Owing to the low temperature of the spring months, our summer birds were late and very irregular in the dates of their appearance in this locality, for with the exception of the Sandwich Tern and Whimbrel, none were up to their usual time of arrival. The Sandwich Terns were seen on March 28th, but I did not see or hear a Common Tern until May 15th. Of our land-birds the Chiffchaff, as usual, was the first to make itself known—on April 22nd. This bird, from the peculiarity of its song, attracted my attention at once, for at first I thought that a Willow Wren and Chiffchaff were singing in

defiance of each other,—as many small birds do at times,—and I could not be certain that these birds were not present until I caught sight of the Chiffchaff in a thorn-hedge, and had closely watched it for some time. It began its song with the first two soft notes of the Willow Wren and ended with the last two notes of the Chiffchaff—a combination of song that puzzled me, for although I had been acquainted with both the notes of the Chiffchaff and Willow Wren since I was quite a boy, yet I never heard anything similar to it before, for the notes of both birds are so unlike and are so well marked that no one can mistake one for the other. I was so struck with its strange song that I intended to shoot and examine the bird, but on the following day, when I went to look for it, it had disappeared from the plantations, and it was a fortnight after before I heard another individual singing in the usual manner. I should be glad to hear if any of your readers ever heard a Chiffchaff sing as the one above mentioned. On April 23rd I heard the first Willow Wren, but the cold weather stopped its song for several days, until the 29th, upon which day I heard some Whimbrels. The Cuckoo was not heard until May 2nd, and Swallows appeared on the same day. The Corn Crake was not heard in this neighbourhood until May 12th, nor Whitethroats until the 15th, and the first Spotted Flycatcher on the 22nd; the poor bird appeared very uncomfortable and cold-looking, owing to the stormy weather and heavy hail-storms of the previous four days, when the thermometer fell to 39° on the nights of the 19th and 20th. However, as if to make up for the low temperature of April and first half of May, the weather has now become very warm, the thermometer all through June never having been below 70°, by day, and on the 15th, 16th, and 17th it has been up to 74°, 79°, and 81°. On the 17th I was at Bartragh, and saw about a dozen Godwits, but all were in the pale plumage of winter, none exhibiting any red feathers. I saw some young Ring Plovers nearly able to fly, running about near their nesting-places, and as I was walking along the sands by the open bay at the north side of the island I was surprised at seeing a large flock of Red-breasted Mergansers, at least a hundred birds, closely packed together, swimming just outside the surf. There were very few birds with dark heads in the flock, the majority appearing to be females or immature males. It was a most unusual sight to me, for I never before observed Mergansers at this season flock on the sea; indeed the most I have ever come across would be perhaps half a dozen individuals fishing on the inside channels. It is probable that the Shoveller Duck nests regularly every season on Lough Conn, for a few years ago I saw an old male flying about a reedy bay on the lake near the old abbey of Errew, and from its not wishing to leave the place when disturbed, but continuing to fly round, I am sure it had its mate hatching close by; and this season, near the same part of the lake, a pair were seen and the male shot some time last April. Many Wild

Ducks, as well as Red-breasted Mergansers, breed on the islands in the lake, and there are several colonies of Black-headed Gulls and Common Terns also. Redshanks regularly frequent the lake to nest on the islands, and I have seen their eggs brought from an island near Cloghans.—
ROBERT WARREN (Moyview, Ballina).

Ornithological Notes from Breconshire.—Your readers will be pleased to hear that the Kite (*Milvus regalis*) is slowly increasing in this county. I not unfrequently see one soaring steadily along in places where years ago such a sight would have been a wonder. One of my boys, a good observer, tells me that in October last he saw five in one spot soaring in circles higher and higher, until they flew in a straight line towards the Beacons. They were probably two old birds and three young ones. A pair now frequent Vennyvach Wood, the first time for certainly a number of years. This increase may be accounted for in two ways, *viz.*, the almost total absence of trapping on the moors and in the wilder and more secluded parts of the county, and express protection of them by one of our largest hill-owners. Woodcocks were fairly plentiful last winter, especially (as is always the case here) in November and February. Wildfowl of all kinds were scarce. Two Scaup Ducks, *Fuligula marila*, were seen on the Gludy Lake, but I heard of nothing else worth mentioning. Last autumn my boy saw a male Sparrowhawk attack a Jay; they were rolling over and over on the ground; he picked the Jay up, but it had very little life left; the hawk flew off and pitched in a small oak tree close by, and then flew back to within a few yards of the dead Jay, evidently leaving it with great reluctance; the Jay had made a good fight for his life, as appeared by the numerous feathers scattered about. The Great Spotted Woodpecker is certainly increasing, while the Lesser Spotted Woodpecker is decreasing in about the same proportion; this is singular and at present inexplicable, but the fact remains. I also see the Stock Dove, *Columba anas*, more frequently than I did formerly. The Curlew, *Numenius arquatus*, appeared as usual about the middle of March; on the 23rd I saw a pair near Llangorse Lake, and two had been seen near here a week earlier; it keeps its time of coming with wonderful regularity, but now breeds in marshy places on the lowlands as well as on the hill, one of the good results of the enforcement of the Wild Birds Protection Act. A friend living on the borders of the county writes me on March 28th that "The Raven is sitting in Craiglas, and, I should say, nearly hatching. The Dipper, *Cinclus aquaticus*, is also nesting." The last-named bird builds very early about here; one, with five eggs, sat on about a week, being found on the first Sunday in March, in the middle of that heavy snow-storm. Unfortunately the Barn Owl is getting very scarce; I never see one now, although my friend above quoted writes me on the same date, "I am glad to tell you that the White or Barn Owl is again to be seen about; they are very harmless, and it is a great

pity people are so ignorant about them": in which expression of opinion I quite agree.—E. CAMBRIDGE PHILLIPS (The Elms, Brecon, S. Wales).

Unusual Nesting-site for the Wryneck.—In the last number of 'The Zoologist' (p. 265) I recorded the fact of a Tree Sparrow nesting in a mole-burrow in a brick-earth cutting in Kent. On July 9th I was examining the holes in the same cutting on the chance of finding a late nest, when I heard a sound, not unlike that made by shaking a handful of silver coins, issuing from one of the holes; after half an hour's hard work I was able to insert my hand, when I discovered that the hole was occupied by five full-fledged young Wrynecks. There appeared to be no nest, or, if there was, it was so completely concealed under a mass of malodorous guano that I did not discover it. I have never met with any recorded instance of the Wryneck breeding in a hole in the ground, and it may therefore be of interest to publish the fact.—A. G. BUTLER (Natural History Museum).

Hawfinch in Yorkshire.—This interesting bird is yearly becoming more common in this neighbourhood. There are at least half a dozen places where it nests, and at least three regularly. Mr. Storey, of Pateley Bridge, obtained a nest in Nidderdale last year, the first record of its nesting in the Dale; the birds have again nested this year. During the winter months an unusual number frequented the gardens in the town and on the outskirts. I am inclined to think that they had all been bred in the neighbourhood. On one estate great care is taken to protect them. The head gardener, a very intelligent man, instead of shooting them, as his predecessors had done, protects them carefully, but places nets over his fruit, and thus prevents any complaints being made as to the damage done by the birds to the fruit.—RILEY FORTUNE (Harrogate).

The Song of the Chaffinch.—In a recent number of 'The Ibis' (1887, p. 194), Mr. W. C. Tait remarks that in Portugal the Chaffinch begins to sing (as with us in England) in February; he adds that there it recommences to sing in September, and that he "has heard it as late as November 27th." I may be mistaken, but to my recollection the Chaffinch rarely sings during the autumn months in Great Britain. At any rate I have only a single record of the fact among my field notes, *i. e.*, on the 10th of September, 1882, I heard a Chaffinch singing lustily in a garden near Carlisle. I should be glad to learn from other readers of 'The Zoologist' whether our home Chaffinches are autumn songsters. If such is the case, it is curious that the fact should be unnoticed in our text-books.—H. A. MACPHERSON.

Black Tern near Gloucester.—On May 21st a specimen of the Black Tern, *Sterna nigra*, was shot at the "Lower Parting," on the Severn, just below Gloucester, and has been set up by a local taxidermist, in whose hands I saw it. It is an adult female bird, in perfect breeding plumage.

The only other recorded occurrence of the species in this county I know of is one reported from Avonmouth by Mr. Wheeler in the 'Proceedings of the Bristol Naturalists' Society' (vol. i., part 3). — H. W. MARSDEN (37, Midland Road, Gloucester.).

Mimicry of the Corn Bunting. — When birdsnesting on the Upper Rhine, near Mulheim, I found the Corn Bunting abundantly established on the lower grounds. During great heat the males sang incessantly (their mates were sitting), perching indifferently on the ground, on low bushes and rails, on the tops of walnut trees, and on the telegraph-wires. Their song seemed to be identical with the dialect of those I had met with at home, with a single exception. On June 19th a Corn Bunting perching on a telegraph-wire poured forth a liquid and sweet song, embodying the notes of the Crested Lark, which latter species is resident, though scarce, in that district. That the Reed Bunting has a good ear and can be trained to sing the Sky Lark's song I have recorded elsewhere, but I never suspected the Corn Bunting of a similar capacity.—H. A. MACPHERSON.

Spring Moults of the Wheatear.—It appears that Wheatears occasionally, if not always, moult their tail-quills after their arrival in this country on the spring migration. Many examples procured at that season are found to have the distal portion of these feathers of a brownish black, more or less worn at the extremity, the broad buff edges or tips carried on their departure after the autumn moult having either entirely or almost worn off; some again have broad, almost white, tips to the feathers, these being at the same time black and glossy; others have mixed tails, consisting of feathers in both conditions. A male in my possession, shot in Sussex on the 7th April, has the quills of the wings and tails very brown those of the latter being dark to the extremity, the buff feather edgings having worn off. Another, procured on March 18th, has blacker feathers (probably to be accounted for in this case by a difference of age), but still untipped. Of some three examples from North Wales, shot on April 29th, one is a female having three new tipped feathers; the others are males, one having an entirely old untipped tail, the other one new tipped feather, and all the rest old. A Sussex male, 7th April, has the first four on the right side tipped light, and another from the same locality, 19th March, which still retains much of the brown edgings to the dorsal plumage, has all the tail-feathers tipped, with the exception of the third and fourth on the right side. A third male, 5th May, has the four outside feathers on the right side dark to the extremities, the colour being rather brown and the feathers old and worn in appearance; the rest shorter than these, blacker in tint, new and glossy in appearance, and all tipped with white. This last bird was clearly moulting its tail, and I am inclined to think that all the examples showing mixed tails were similarly engaged at the time they were procured. The

old and worn appearance of the untipped feathers, and the glossy new-looking condition and blacker tints of those beaming light tips, is common to all the examples I have examined.—OLIVER V. APLIN (Bloxham, near Banbury).

Notes from Oxfordshire. — On the 3rd of December last a friend of mine shot a Snipe, which fell into the river and which began swimming towards the shore. Almost simultaneously with the shot my friend heard a noise behind him, and looking round observed a Heron rising from a very small pond which stands between this house and the River Isis. After the bird had ascended some sixty or eighty feet, he was seen to drop something from his beak to the ground. My friend went up to the spot, and found a Pike of over a pound in weight, alive, and apparently none the worse for the treatment it had received from the Heron. After the fish had been picked up, the Heron returned to the spot, evidently much disconcerted by the disappearance of its prey; as for the fish, it was brought home, and weighed, and eaten; it tasted somewhat muddy, but the flesh was firm and good. On several occasions a Fox has been observed located in a tree, a willow, close to the river; when the South Oxon Hounds came here some short time since, Reynard was knocked out of his retreat, and after a run across country he returned to his stronghold, which he still continues to occupy. Not very far from the same spot, and in a thorn bush fourteen feet from the ground, a Moorhen has made her nest, where she is diligently sitting; it is to be hoped she will bring off her brood. Birds and beasts of all sorts have but a poor chance of escape along the banks of this river, in spite of any assistance my keepers may be able to afford them here. There are other enemies, however, besides dogs and bipeds, which make the multiplication of birds somewhat precarious. I saw an example of this on May 26th last. Close in front of the house, where every sort of bird comes to claim protection, a Thrush had just hatched out her young; she had a neighbour, a Jackdaw, who was engaged in the same pursuit in an elm tree hard by. The Jackdaw had doubtless been anticipating the advantage of having such succulent young neighbours, and I happened to be looking out of the window when he made his assault. He lit on the grass plot and stalked in a dignified manner to the *Juniperus thurifera*, where the Thrushes were; he flew up to the nest, and brought down one of the little delicacies in his claws. The terror and despair of the poor parents was pitiable. They perched on an iron railing over and above where the operation was going on, and watched the dismemberment and the deglutition of their offspring in helpless agony. Ever and anon they both flew at the monster; the Jackdaw only deigned to turn his head and give a warning look, when the affrighted parents retired. One after another the brood was disposed of, and then the marauder disappeared. The poor Thrushes flew down to the ground when he was gone, but nothing was left. It is possible that the nest of a Sedge Warbler was robbed by a similar bird; one day

the nest contained three eggs of the Sedge Warbler and one egg of a Cuckoo; on the following day a portion of the shells of the eggs was alone remaining. It is worthy of remark that two Cuckoo's eggs were found in the nest of a Hedgesparrow, together with four of the Hedgesparrow's own eggs. A curious fate attended a Kingfisher which had built a nest in the bank of a small pond in the Park. The pond stands close to the head keeper's house; there are usually Ducks upon it, and the Deer and Scotch cattle are in the habit of going there to drink. The nest was known to be there, and the bird had been frequently seen going to the nest. One morning a person visiting the place found the bird with nest and eggs crushed as flat as a pancake, and a mark of the expanded foot of a bullock was very evidently imprinted on the surrounding mud. That Skye cattle are not entirely innocuous to birds is further proved by the fate of a Swan which died here in May last. These cattle, when they have calves, are apt to become very fierce. In this case a heifer had become troublesome, and had frightened several persons in the park. It was being driven near a small lake, and, finding a Swan on the bank, it deliberately tossed it up into the air. The Swan lived for several weeks, but at last died from the effects of the treatment.—G. W. HARCOURT (Nuneham Park, Oxon).

Grouse Disease.—With reference to my remarks on this subject in the last number of 'The Zoologist' (p. 265), I have received the following interesting communication from Lord Walsingham:—"June 9th, 1887. I read with much interest the extract from 'The Zoologist' which you were good enough to send me. Among the Grouse which you examined, I should be inclined to think (c) was the only one that had the real Grouse-disease—namely, that in which Cobbold's threadworm, *Strongylus per-gracilis*, was found in the cæca. It has certainly occurred in some places in the South of Scotland and in the North of England. The Duke of Roxburgh told me that, had he been asked to do so earlier, he could have sent up any number of birds from Berwickshire, where the disease has been very destructive. It has now ceased in places where it was most severe, but it must have been very partially distributed. My moors in Yorkshire have been quite free from the true epidemic, although a few birds died from some cause or other after last shooting season: perhaps a stray shot may have accounted for one or two. As I am on this subject, I send you two memoranda made after a conversation with Lord Ormathwaite a few days ago, one of which bears upon the question of featherless legs. He tells me that in August, 1872,—the great Grouse year,—when shooting at High Force, he well remembers Raine, the head keeper, after a day in which nearly 1000 brace were killed, holding up a fat plump bird, one of two killed that day, *with no feathers on the legs*, and saying, 'I shall not see any of you gentlemen here for three years to come.' This prophecy of the sweeping effects of the disease which he had detected was fulfilled

to the letter. Lord Ormathwaite also tells me that he once asked his old stalker, Donald Fraser, at Fannick, Ross-shire, how long ago he had first known the Grouse to die of disease in any large numbers. His answer was that 'he well remembered when he first knew it. He was herding cows in the Reay country, and saw packs (probably meaning large numbers) of Grouse all lying dead; and when he came home and told the people what he had seen, the same day the news of the battle of Waterloo arrived.' So here is pretty good evidence that the disease, or at least some very destructive epidemic, is no new thing. Moreover, this fixes the time of year as the same in which the present modified outbreak commenced."—F. JEFFREY BELL. [See Dr. Klein's Report on the Grouse Disease, in 'The Field' of July 23rd ult.—ED.]

Hybrid Greenfinch and Linnet.—The interesting notes on hybrid Greenfinches furnished to 'The Zoologist,' by my friend Mr. J. H. Gurney, jun., tempt me to record the fact that such a hybrid was interviewed by myself and two ornithological friends, while nesting on a moor near Aberdeen on June 29th. The bird in question was feeding, when first observed, upon a patch of growing turnips, of which some trusses bore yellow flowers, while others had run to seed. This hybrid was feeding so greedily upon the green seeds that we approached within a couple of yards before he took wing. He was solitary, and had probably been hatched the previous year. We revisited the spot the following day, but he had departed.—H. A. MACPHERSON.

Redstart laying spotted Eggs.—Never having seen, or heard of, a spotted egg of the Redstart, I was very much surprised last summer at taking a distinctly spotted variety of the egg of this bird. The hen Redstart was seen leaving the nest, which was built in a stone wall. This summer I have again taken a spotted egg; both cock and hen Redstart seen continually. In both cases the greater number of the eggs in the set were quite spotless. The markings are sparsely distributed over the broad end, as in eggs of the Wren. The two localities in which the nests were found are over four miles distant from one another, so I do not think it likely that the eggs were laid by the same bird.—E. W. H. BLAGG (Cheadle, Staffordshire).

[Eggs of the Redstart "with a few faint reddish specks" are noticed in the fourth edition of Yarrell's 'British Birds,' vol. i. p. 331.—ED.]

Hawfinch nesting in Kent.—Several young Hawfinches were seen flying about in the Cemetery here in June. One of the old birds was with them.—HENRY LAMB (Maidstone).

Cirl Bunting breeding near Godalming.—It will perhaps interest your readers to know of the breeding of the Cirl Bunting in this locality. About the middle of May a nest was shown me by the caretaker of the

Godalming Cemetery, which adjoins this house; it was built in a small yew tree close to one of the paths, and was composed of bents, mixed with a little moss, and was lined with finer bents and some hair; it contained four eggs of a dull white, tinged with grey, and streaked and blotched with liver-brown. The nest was interfered with, one of the eggs was taken, and the old birds forsook it. Having become aware of this I removed the nest, but I was able to save only one of the eggs, which had been sat upon for some days, and that one is in but a shattered condition. Since then the same pair of birds have built a second nest, about a hundred yards distant from the first, among some twigs growing out of the trunk of an elm tree, and a foot and a half from the ground. When I first saw it (on June 18th) it had four eggs which were almost ready to hatch; last week there were four young ones in the nest, but yesterday morning (June 27th) I found that two of the four—the cause I know not—were dead. I may add that both my son and I have spent some time in watching the old birds. Each takes a share in feeding the young; when alarmed each utters a single note which is repeated several times; also, when disturbed, the female flutters along the ground as if hurt. The birds are not at all shy, but continue to carry food—which appears to consist of caterpillars—to their young whilst we are standing a few yards off. I observe that in the second edition of Yarrell's 'British Birds,' it is stated that the Cirl Bunting has been found in Surrey, near Godalming; and in the last edition of the same work it is said to breed in Surrey; but I have not noticed any specified instance of its doing so, and that is why I send you this account. The second nest is precisely similar to the first. It may be well to add, again, that I have been for many years a diligent observer of birds and of their habits, and that I am quite certain the bird in question is the Cirl Bunting, for with careful scrutiny of its plumage it is impossible to mistake it.—HENRY BENSON (Rector of Farncombe).

Curious site for Chiffchaff's Nest.—On the 4th of June last I found a nest of the Chiffchaff, containing three eggs, built in a holly-bush quite five feet from the ground. The nest was very loosely built, and came to grief before the young birds were reared. The old Chiffchaff was seen and clearly identified.—E. W. H. BLAGG (Cheadle, Staffordshire).

Long-eared Owl laying in Rook's Nest.—In March, 1886, a friend of mine, while collecting a few Rook's eggs near Barnborough, Northumberland, found a nest containing three eggs of the Rook and one of the Long-eared Owl. There can be no doubt about the latter, as the old Owl was seen to fly from the nest.—RILEY FORTUNE (Harrogate).

The Missel Thrush occasionally a Bird of Prey.—With reference to the note under this heading (p. 263), I may mention that I obtained a pair of Missel Thrushes from a nest in May last year, and one of the

birds—a handsome cock—is still in my possession. I have been in the habit of giving him all my young dead Canaries, if only two or three days old, and he has eaten them with considerable relish, bolting them whole: the young Thrushes being larger could not be so readily swallowed, and therefore would necessarily have to be pulled to pieces.—A. G. BUTLER (British Museum Nat. Hist.).

Nesting of the Common Sandpiper.—Although the following facts are mostly at second-hand, they may be of interest to some readers of 'The Zoologist.' The Common Sandpiper, *T. hypoleucus*, disappears from the banks of the Severn in this neighbourhood about the middle or end of May, and I hear that it also leaves the lower reaches of the Wye—say from Ross downwards—about the same time. It is not rare during early spring on both rivers. Doubtless these birds move up-stream to breed on the banks of the higher waters and tributaries of both these rivers. It is found breeding annually on the banks of the Lugg; and Dr. Williams, of Kingsland, has this year brought a somewhat remarkable fact to my notice. The nest is usually placed on the shingle and mud thrown up by the river, and which becomes covered with docks and other coarse herbage. During the last two seasons all the eggs have been destroyed by floods, and this year a complete change of habit has taken place. Every nest except one—possibly that of a new arrival in the district—has been placed out of reach of any possible flood, some being sixty yards from the water, others in a wood on a steep hillside, and one even placed in the head of a pollard willow. An Ayrshire correspondent has sent me some fine clutches of only three eggs each, and he suggests the fact of four (the usual number) not being laid may be attributed to stormy weather. Has this been noticed elsewhere?—H. W. MARSDEN (Gloucester).

Note on the Ring Ouzel.—On June 13th, at Castleton (Derbyshire), hearing a great noise from two Ring Ouzels, I watched them going to a nest, from which one of them (the other looking on from close by) twice took eggs to the grass near, where he began to eat them. I afterwards climbed to the patch of grass, and found one of the eggs finished, the other (quite fresh) only half eaten. The eggs in question were either Blackbird's or Ring Ouzel's. I was unable to reach the nest. As this fact of Ring Ouzels robbing a nest for the sake of the eggs is strange to me, I thought it worth communication.—ALFRED F. BUXTON (5, Hyde Park Street, W.).

A new Egg-drill.—Several correspondents having written to me asking about the egg-drill mentioned in 'The Zoologist' for June, I beg to state that the full address of the firm from whom it may be obtained is "The Dental Manufacturing Company," 6 to 10, Lexington Street, Golden Square, London, W. In ordering they should ask for No. 65 in "Ash's Catalogue," and particularly mention that it is to be sharp-pointed. They

charged me 1s. each, and for the instrument with a half-inch diameter, which they had especially to make for me, 4s. 6d.—HERBERT LANGTON.

A singular Bird's Nest.—The 'Continental Times' of July 13th states that a bird's nest, made wholly of long spiral steel shavings, without the least particle of vegetable or animal fibre, has been found at Solothurn, in Switzerland, the centre of a large watch manufacturing district. It has been preserved in the local museum.

Unusual Site for a Flycatcher's Nest. — The Spotted Flycatcher almost invariably makes a nest for itself, but this summer a pair of these little birds have hatched out their young in an old Missel Thrush's nest here. The site seems to be sufficiently curious to be worth notice.—DARELL STEPHENS (Trewornan, Wadebridge).

Nightingale singing in July.—On the 2nd of July, and again on the 8th, I heard the Nightingale singing on the wooded banks of the Medway above Maidstone.—HENRY LAMB (Maidstone).

[This is a late date at which to hear a Nightingale. The song generally ceases by the end of the first week in June. The young birds being then hatched, the old ones busy themselves in getting food for them.—ED.]

REPTILES.

Coloration of the Viper.—The remarks of my friend Mr. Lodge (p, 271) have revived my interest in Vipers, and I should like to express my accordance with his view, that the colour of Vipers bears little or no relation to the colour of the soil on which they live. In the Forest of Fontainebleau, and in Auvergne, a good many Vipers occurred to me some years ago. The usual ground-colour was a bronze or olive-brown, and I never met with the red variety. But in Auvergne a beautiful French-grey variety was found upon the same ground as the bronze examples, and seemed almost as abundant. The fact was impressed upon my mind by three rather severe bites incurred in the capture of a lively grey specimen. This grey variety has never come under my notice in Great Britain.—H. A. MACPHERSON (3, Kensington Gardens Square).

Mode in which Vipers are killed by the Hedgehog.—M. Ferdinand Coste, of Lacanche, in a letter to the French journal 'l'Eleveur,' writes as follows:—"Everyone knows that the Hedgehog is a sworn enemy of reptiles in general and of the Viper in particular; but few perhaps are aware in what way he contrives to overcome so recalcitrant and dangerous an enemy and make a meal of it. My keeper was going his round this summer in a wood which is unfortunately infested with Vipers, when he espied an enormous one asleep in the sun. He was on the point of killing it with a charge of shot, when he perceived a Hedgehog coming cautiously

over the moss and noiselessly approaching the reptile. He then witnessed a curious sight. As soon as the Hedgehog was within reach of his prey he seized it by the tail with his teeth, and as quick as thought rolled himself into a ball. The Viper, awakened by the pain, at once turned, and perceiving his enemy made a terrific dart at him. The Hedgehog did not wince. The Viper, infatuated, extends itself, hisses, and twists with fearful contortions. In five minutes it is covered with blood, its mouth is one large wound, and it lies exhausted on the ground. A few more starts, then a last convulsive agony, and it expires. When the Hedgehog perceived that it was quite dead he let go his hold, and quietly unrolled himself. He was just about to begin his meal and devour the reptile, when the sight of my keeper, who had approached during the struggle, alarmed him, and he rolled himself up again until the man had retreated into the wood. The Hedgehog, then, did not exactly kill the Viper, but compelled it to kill itself by darting against his sharp spines."

Slow-worm attacked by a Missel Thrush.—One day last summer, while driving to Dorchester, I noticed a little cloud of dust rising from the road. On drawing nearer I saw it was caused by a Missel Thrush, *Turdus viscivorus*, which held a struggling Slow-worm, *Anguis fragilis*, and was pecking at it with all its might and main. When I got quite close, the Thrush flew away, and the Slow-worm slowly wriggled off. When searching for beetles I have often found Slow-worms under the loose bark of fallen trees.—C. W. DALE (Glanville's Wootton, Sherborne).

FISHES.

Tunny at Penzance.—On July 11th a small Tunny, *Orcynus thynnus*, Day, was brought to me. It measured two feet six inches over all, and turned the scale at 20 lbs. It was taken by hand embayed in a salt-water pool in the rocks at Newlyn, in this Bay. The stomach was gorged with pilchards. The flesh had all the appearance of dark bull-beef. My friends and myself dressed portions of it by several methods, with the following results:—Stewed, it was delicate and good; broiled, it was coarse, but palatable; baked in oil and vinegar ("marinated"), it was very good. In every case the taste of the fish was pronounced to be between that of mackerel and salmon, but not so good as either of these fish separately.—THOMAS CORNISH (Penzance).

A Man killed by a Swordfish.—The schooner 'Venus' is a small vessel of about twelve tons, owned and commanded by Franklin D. Langsford, of Lanesville, Mass., with a crew of three men, engaged in the general fisheries off the coast of Massachusetts. On August 9th Capt. Langsford sailed from home in pursuit of Swordfish. About 11 a.m., when eight miles north-east from Halibut Point, in Ipswich Bay, a fish was seen. The

captain, with one man, taking a dory, gave chase, and soon harpooned the fish, throwing over a buoy with a line attached to the harpoon, after which the fish was left and they returned to the vessel for dinner. About an hour later the captain, with one man, again took his dory and went out to secure the fish. Picking up the buoy, Captain Langsford took hold of the line, pulling his boat toward the Swordfish, which was quite large, and not badly wounded. The line was taut as the boat slowly neared the fish, which the captain intended to lance, and thus kill it. When near the fish, but too far away to reach it with the lance, it quickly turned and rushed at and under the boat, thrusting its sword up through the bottom of the boat twenty-three inches. As the fish turned and rushed towards the boat the line was suddenly slacked, causing the captain to fall over on his back; and, while he was in the act of rising, the sword came piercing through the boat and into his body. At this time another Swordfish was in sight near by, and the captain, excited and anxious to secure both, raised himself up, not knowing that he was wounded. Seeing the sword, he seized it, exclaiming, "We've got *him*, any way!" He lay in the bottom of the dory, holding fast to the sword, until his vessel came alongside, while the fish, being under the boat, could not be reached. Soon the captain said, "I think I am hurt, and quite badly." When the vessel arrived he went on board, took a few steps and fell, never rising again. The boat and fish were soon hoisted on board, when the sword was chopped off to free the boat, and the fish was killed on the deck of the vessel. The fish weighed 245 pounds after its head and tail were cut off and the viscera removed; when alive it weighed something over 300 pounds. Captain Langsford survived the injury about three days, dying on August 12th, of peritonitis, the sword having penetrated his body to the extent of seven inches, and entered the pelvic cavity. The sword has been deposited in the U.S. National Museum.—W. A. WILCOX (in a letter to Prof. S. F. Baird), *Bull. U.S. Fish Commission*, 1887, p. 417.

Crenilabrus exoletus at Penzance.—Early in May, in a crab-pot in about ten fathoms of water, I took a Rock-cook, *Crenilabrus exoletus*. It is not a rare fish here, but is rarely observed, and I note it on account of its exceedingly brilliant colouring. The ultramarine-blue stripes over and below the eye throughout the whole length of the head, were followed along the back by markings, following the edges of the scales, of a similar blue, intermixed with bright iridescent-green. The base of the pectorals and of the caudal were similarly marked, as were also three or four rows of scales below the lateral line; and it was similarly, but in fainter colour, marked on the belly behind the vent, the blue colour preponderating; the sides were of a golden bronze colour, and so also were the lower sides of the preoperculum. The dorsal and anal fins were also bright blue at the base; the belly was of a bronzed white. The fish was a male, which may perhaps

at this season account for its peculiarly brilliant appearance. It possesses the very unpleasant character of having an extremely disagreeable odour, even whilst alive. I presume that the reason why fish are very rarely described in their true colours by ichthyologists is that they do not see their specimens until they are dead and have lost their colours, but this is the brightest coloured Rock-cook I have ever seen.—THOMAS CORNISH (Penzance).

CEPHALOPODA.

Octopus at Penzance.—During the week ending July 16th I took two specimens of *Octopus vulgaris* in my nets, in about eight fathoms water. They were both small ones, the largest less than three feet in length. Both had ink-sacs full of the ordinary fluid, but they did not attempt to squirt it when taken. In fact, I never saw an Octopus attempt to squirt. One was beautifully coloured at the time of its capture, mottled light and dark sepia-colour. The other was dull self-coloured when captured, but attained this mottled appearance as it died.—THOS. CORNISH (Penzance).

MOLLUSCA.

Secretion of a violet-coloured fluid by certain of the Limnæidæ.—My friend Mr. Wm. Nelson (Leeds) noted in the 'Quarterly Journal of Conchology' for May, 1877, that *Limnæa stagnalis* had the power of emitting, when irritated, a pale violet-coloured liquid, which he had noticed on taking the animal (after killing) from the shell, and also when lifting them alive from out of the water. It may be of interest to know that both *L. peregra* and *L. palustris* also possess this peculiar property, which I have frequently noticed in living specimens. The liquid discharge is of a much darker colour in *palustris* than that in *peregra*.—W. E. COLLINGE (Springfield Place, Leeds).

Rate of Progress by Snails.—The rate of progress in the land Mollusca is so slow, that to travel "at a snail's pace" has become proverbial. It would seem from experiments recently made by an American savant, at the Terre Haute Polytechnic, that the precise rate has been approximately determined. Half-a-dozen snails were allowed to crawl between two lines ten yards apart, when the average speed was ascertained to be at the rate of a mile in fourteen days. The particular species of *Helix* is not named. It would be well to have stated this, for doubtless some species can travel faster than others.

CRUSTACEA.

Livid Swimming Crab at Penzance.—I have to-day taken a crab which I must describe as the "Livid Swimming Crab." It precisely coincides with the descriptions given by Bell of *P. marmoreus* and of

P. holsatus, except in its size, which is greater than that of *P. marmoreus*, being $1\frac{1}{2}$ in. in length, and $1\frac{1}{8}$ in. in breadth across the carapace, and in the colour of the carapace, which is of a dull leaden hue all over, relieved on the hepatic regions by two corresponding crescents of little white spots. The specimen is a male, and is in excellent condition, and my conclusion about it is that it is merely a largely developed specimen of *P. marmoreus*, as Bell suggested *P. holsatus* might turn out to be. Its colour makes no difference in my conclusion. It is well known that in many of our smaller crabs the colour of the young is quite unlike the colour of the adult in the same species. For instance, the little many-coloured *Xanthos* develop into the well-known sluggish self-coloured reddish-brown crab.—THOMAS CORNISH (Penzance).

INSECTS.

Wasp attacking a Tarantula.—My friend Mr. Samuel Bligh, of Catton, Coslanda, Ceylon, writes me as follows, under date of 22nd May, 1887:—"On the 16th a Mason Wasp, of a large species common here, was discovered dragging a large Tarantula across my garden-path; it had evidently stung to numbness its huge and venomous prey, and was taking it to its nest. The Wasp was killed; the Spider is still alive, but completely paralysed; it weighed three drachms, the Wasp only ten grains." I think the above may be interesting to readers of 'The Zoologist.'—J. H. GURNEY (Northrepps Hall, Norwich).

SCIENTIFIC SOCIETIES.

ZOOLOGICAL SOCIETY OF LONDON.

June 23, 1887.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Mr. Sclater exhibited the skin of a White-nosed Monkey of the genus *Cercopithecus*, lately living in the Society's Gardens, which appeared to be the *C. ascanias* of Schlegel. It had been obtained by the Rev. W. C. Willoughby from the west shore of Lake Tanganyika, East Africa.

Mr. Sclater also exhibited and made remarks on a specimen of the Pheasant from Northern Afghanistan lately described by him as *Phasianus principalis*.

An extract was read from a letter addressed to the Secretary by Mr. A. H. Everett, of Labuan, reporting the return of Mr. John Whitehead from his expedition to Kina-Balu Mountain in Northern Borneo, with specimens of some fine new Birds, Mammals, and other objects of Natural History.

Dr. Günther exhibited and made remarks on a hybrid Pheasant, between a male Golden Pheasant, *Thaumalea picta*, and a female Reeve's Pheasant, *Phasianus reevesi*. Dr. Günther also exhibited a living hybrid Pigeon, produced by a male white Fantail Pigeon and a female Collared Dove, *Turtur risorius*.

Dr. Günther read a report on the zoological collections made by Capt. Maclear and the other officers of H.M.S. 'Flying Fish,' during a short voyage to Christmas Island. This island is situated in the middle of the Indian Ocean, south of Java, and had never been before visited by naturalists. The collection, which had been worked out by the staff of the British Museum, consisted of ninety-five specimens, amongst which were examples of two Mammals, two Birds, two Reptiles, two Mollusks, two Coleoptera, two Lepidoptera, and a Sponge new to Science.

Mr. F. Beddard read a paper on *Myrmecobius fasciatus*, in which he described a remarkable glandular structure stretched across the anterior region of the thorax of this Marsupial.

Prof. F. Jeffrey Bell read the sixth of a series of studies on the Holothuridea. The present paper contained descriptions of several new species belonging to the genera *Cucumaria*, *Bohadschia*, and *Holothuria*.

Mr. A. Smith-Woodward read a report on the fossil teleostean genus *Rhacolepis*. The author gave a detailed description of this Brazilian fossil-fish, which had been named and briefly noticed by Agassiz. Three species were defined, and the author showed that the genus had hitherto been erroneously associated with the Percoids and Berycoids. He considered it an Elopine Clupeoid.

A communication was read from Mr. James W. Davis, containing a note on a fossil species of *Chlamydoselachus*. The author pointed out that some teeth from the Pliocene of Orciano, Tuscany, figured and described by R. Lawley in 1876, were referable to this newly-discovered genus of Sharks. He named the fossil species *C. lawleyi*.

Mr. Frank E. Beddard read the fourth of a series of notes on the anatomy of Earthworms. The present communication treated of the structure of *Cryptodrilus fletcheri*, a new species from Queensland.

A communication was read by Mr. Roland Trimen, containing observations on *Bipalium kewense*, of which worm he had obtained many specimens from gardens at the Cape.

Dr. Günther gave the description of two new species of fishes from the Mauritius, proposed to be named *Platycephalus subfasciatus* and *Latilus fronticinctus*.

Mr. Sclater read a note on the Wild Goats of the Caucasus, in which he pointed out the distinctions between *Capra caucasica* and *C. pallasii*, which had been until recently confounded together.

Mr. G. Boulenger made remarks on the skull and cervical vertebrae

of *Meiolania*, Owen (*Ceratochelys*, Huxley), and expressed the opinion that these remains indicated a Pleurodiran Chelonian of terrestrial and herbivorous habits. The peculiar structure of the tail pointed to a distinct family (*Meiolaniidae*).

A second paper by Mr. Boulenger contained remarks on a rare American fresh-water Tortoise, *Emys blandingii*, Holbrook, which was shown to be a close ally of *Emys orbicularis* of European fresh waters, but to present distinct differential characters.

Mr. A. Dendy read a paper on the West-Indian Sponges of the family *Chelininae*, and gave descriptions of some new species.

Mr. H. Seebohm gave the description of a new species of Thrush, from Southern Brazil, proposed to be called *Merula subalaris*.

A communication was read from Mr. R. Bowdler Sharpe, containing the description of a new species of the genus *Calyptomena*, lately discovered by Mr. John Whitehead on the mountain of Kina-Balu, in Borneo, which he proposed to name *C. whiteheadi*.

This Meeting closes the present Session. The next Session (1887-88) will commence in November.—P. L. SCIATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

July 6, 1887.—Dr. D. SHARP, F.Z.S., President, in the chair.

The Rev. W. T. H. Newman, M.A., 11, Park Terrace, The Crescent, Oxford, was elected a Fellow of the Society.

Mr. M'Lachlan remarked that at the meeting of the Society in October, 1886, he exhibited a quantity of the so-called "jumping seeds" from Mexico, containing larvæ of *Carpocapsa saltitans*, Westw. The seeds had long ceased to "jump," which proved that the larvæ were either dead, had become quiescent, or had pupated; about a fortnight ago he opened one of the seeds, and found therein a living pupa. On the 4th inst. a moth (exhibited) was produced.

The President, on behalf of the Rev. H. S. Gorham, exhibited the following Coleoptera, lately taken in the New Forest:—*Anoplodera sexguttata*, Fab., wholly black variety; *Grammoptera analis*, Fab.; *Colydium elongatum*, Fab.; and a specimen of *Tachinus elongatus*, Gyll., with brownish-red elytra.

Mr. S. Stevens exhibited a specimen of *Orsodacna humeralis*, Latr. (*lineola*, Panz., var.), taken by him at Norwood: he also exhibited a specimen of the same beetle taken by him fifty years ago in Coombe Wood; during the interval he had never seen it alive.

Mr. G. T. Porritt exhibited, on behalf of Mr. N. F. Dobrée, of Beverley, a series of about thirty specimens of a *Tæniocampa* he had received from Hampshire, which had previously been referred to as a red form of

T. gracilis. Mr. Dobrée was inclined to think they were not that species, but *T. stabilis*.

Mr. A. C. Horner exhibited the following species of Coleoptera from the neighbourhood of Tonbridge:—*Compsochilus palpalis*, Esp. (5); *Acrognathus mandibularis*, Gyll. (4); *Homalota atrata*, Mann., *H. vilis*, Er., and *H. difficilis*, Bris.; *Calodera rubens*, Er.; and *Oxytelus fulvipes*, Er. He also exhibited a *Rhizophagus* from Sherwood Forest, which appeared to belong to a new species; and several specimens of *Holopedina polypori*, Först., also from Sherwood Forest, where he had found it in company with, and probably parasitic on, *Cis vestitus*.

Mr. Elisha exhibited two larvæ of *Zelleria hepariella*, Stn.

Mr. Stainton remarked that as the greater part of the larvæ of *Zelleria* were attached to the Oleaceæ, it seemed strange that certain species had recently been found on Saxifrage.

Mr. Slater read a paper "On the presence of Tannin in certain Insects, and its influence on their colours." He mentioned the facts that tannin was certainly present in the tissues of the leaf-, wood- and bark-eating species, but not in the tissues of the carnivorous beetles, and that black colour on the elytra of certain beetles appeared to be produced by the action of iron on tannin. A discussion ensued, in which Prof. Meldola, Mr. Poulton, Dr. Sharp, and others took part.—W. W. FOWLER, *Hon. Sec.*

NOTICES OF NEW BOOKS.

*Die Waldschnepfe. Ein Monographischer Beitrag zur Jagdzoo-
logie*, von Dr. JULIUS HOFFMANN. Zweite vermehrte
Auflage. 8vo. Stuttgart, 1887.

THE first edition of this book appeared in 1867, and in the twenty years which have elapsed since its publication, considerable advance has been made in the study of Ornithology. Not only are there now a great many more skilled observers than formerly, but their observations are much more systematic and thorough of their kind. It may almost be said that more definite knowledge has been gained on this subject during the last five and twenty years than was acquired during the previous century. Especially is this the case with regard to the migration of birds, the determination of their breeding haunts, the discovery of new species, and the exposition of relationships from careful anatomical and physiological research. With the greater facilities which now exist for travel and exploration, naturalists have been enabled to

follow our summer migrants into their winter quarters, and to ascertain whereabouts, and in what manner, those birds nest and rear their young which visit us only during the winter months. With this general advance in the science of Ornithology it is not surprising that we have come to learn more even about so common a bird as the Woodcock, sought after as it is not only by naturalists and by sportsmen of every degree who are fond of shooting, but also by that unthinking class of persons who expect to have *gibier* of some kind in season or out of season, and care not where it comes from, or how it is obtained, so long as it appears in their *ménu*.

A glance at Dr. Hoffman's monograph suffices to show that it has been written for the two first-named classes; for the naturalist who is fond of shooting, and for the ardent sportsman who in the intervals of sport may like to read something of the history and habits of a bird which, from the nature of its haunts and its mode of flight, is at all times worth pursuit in the proper season, and, in favoured localities, affords the most enjoyable kind of shooting.

Commencing with some remarks upon the systematic position of the Woodcock in the class *Aves*, Dr. Hoffmann gives a brief review of the different species of Woodcock and Snipe known to Science, with their geographical distribution, based in a great measure upon Mr. Seebohm's article on this subject which appeared in 'The Ibis' for April, 1886, and adopting the differentiations and trinomial nomenclature there proposed. As Dr. Hoffman is not primarily responsible for the views which he has thus adopted, but merely takes them upon trust, this is perhaps hardly the place in which to criticise them, or we might be disposed to question some of the opinions here reiterated, and show cause for reducing the number of species enumerated. Moreover, such a course is rendered the more unnecessary from our expectation that in Mr. Seebohm's forthcoming work on the *Limicolæ* he will see reason to modify some of the views which he has expressed even as recently as in April, 1886. We shall at least expect to see *Scolopax rosenbergi*, Schlegel, identified with *Scolopax saturata*, Horsfield, and *Scolopax solitaria*, Hodgson, allowed to include the Japanese form which, under the trinomial *Scolopax solitaria japonica*, has been raised to the dignity of a subspecies by Mr. Seebohm in the article quoted. A closer study

of the South American Snipe, also, will probably lead to a further revision of this difficult group of birds.

After describing the European Woodcock at length, and noticing some of its anatomical peculiarities, such as the flexibility of the upper mandible, which enables the bird to seize more readily a worm beneath the surface which may be felt though not seen, Dr. Hoffman discusses the question whether there is not more than one race of Woodcock, on the ground that two very different forms of this bird are well known to sportsmen, namely, a large Woodcock (*der Eulenkopf*) of a yellowish tone of colour, with a large head, and flesh-coloured feet; and a smaller and slimmer bird (*Steinschnepfe, Dornschnepfe, der Spitzkopf, oder der Blaufuss*), more sombre in colour, and with feet of a blue or steel-grey colour. The former, it is said, breeds in Central Europe; the latter does not, although some authorities maintain that the differences above noted are indicative of sex only.

In a tabular form (pp. 25—32) Dr. Hoffman has given the weight, measurements, and coloration of forty-two specimens procured in spring (twenty-six males and sixteen females) with critical remarks on the plumage of each, which has a special bearing on the question whether the sexes of the Woodcock can be recognized by any outward markings. It has often been asserted that the sexes may be distinguished by the appearance of the first primary, in which, it is said, the outer web is of an uniform colour in the female, and has white or buffy-white zigzag markings on a darker ground colour in the male. This, however, has long ago been shown (amongst others by Gould) to be a fallacy, and we have seen the first primary of a Woodcock which had the markings referred to for half its length only, the remaining half being quite uniform in colour. Thus no dependence can be placed upon this character, which varies, not with sex, but with age; nor can any constant character be pointed out as an invariable indication of sex.

One of the most interesting chapters in the book is that (Chap. IV.) which deals with the life-history and habits of this bird, including the habit of carrying its young (p. 85), its peculiar note or call, its food, and propagation, under all of which headings a number of useful statistics are given from personal observation by the author or by some of his friends, as well as by authors of note whom he cites.

In the succeeding chapter we have an account of the geographical distribution of the Woodcock and its migrations, including a table showing the date of its spring arrival at Stuttgart (Württemberg) and at Greifswald (Pomerania) as observed for thirty years (1856—1886) by the author and by Dr. Quistorp, of Greifswald, respectively. The regularity of its appearance as noted by these two observers is remarkable, being almost invariably during the first fortnight of March, very rarely during the last week of February, and in two years only as late as the 1st and 4th April, the autumn migration commencing in Northern Europe and in the mountainous parts of Central Europe about the end of the month of September, although later in Germany, and, according to the weather, sometimes even as late as the middle of November.

In Chapter VI. the winter quarters of the Woodcock are defined with more or less exactness (pp. 108—120), and its occasional appearance in the United States noted.

The concluding portion of the volume deals with Woodcock shooting under various aspects, and includes some interesting statistics in regard to the number of birds killed in different years; while an appendix of eight pages contains an account of the North-American Woodcock, with which species the author became personally acquainted in New Brunswick.

On the whole it may be said that both naturalists and sportsmen will find in Dr. Hoffman's monograph an excellent contribution to the history of a much-prized bird, written by one who is evidently well qualified from his experience to deal with the subject.

A Year with the Birds. By an OXFORD TUTOR. Second Edition, enlarged. Post 8vo, pp. 180. Oxford: Blackwell. London: Simpkin, Marshall & Co.

WE believe it to be now an open secret that Mr. W. W. Fowler is the author of this very pleasant little volume, which has deservedly reached a second edition; any doubt on the subject may be almost certainly removed by a glance at the neat "dedication," which runs thus:—"Patri meo qui cum Aucupis nomine avium amorem filio tradidit."

The object of the writer apparently is to show how much

real enjoyment may be gained from a study of Ornithology, even in a city, and under circumstances which at first sight would hardly seem favourable. The "list of birds observed in Oxford and within a radius of four miles" (pp. 165—170) includes upwards of a hundred different species, and, although a few of them (like the Hoopoe) may be considered as of doubtful occurrence, while others, like the Hen Harrier and Goshawk, must be exceedingly rare within the radius referred to, yet it is evident that even in close proximity to a large city like Oxford there is an abundance of bird-life to be met with, offering an attraction at all seasons to those who would have an object in their walks.

It is surprising how many birds, in spite of the presence of their deadliest enemies, boys and cats, will come into our gardens to build their nests, if only fair opportunities are afforded them. "An Oxford Tutor" tells us that in a garden close to his own, wherein the owner had used every means to attract them, there were, in May, 1886, fifty-three nests, exclusive of those of Swallows and Martins. The garden is not more than two or three acres in extent, including a small orchard which adjoins it; but by planting thick bushes and coniferous trees, and by placing flower-pots and boxes in the branches at some height from the ground, he inspired them with confidence in his good intentions. The fact that a pair of Missel Thrushes reared their young there only a few feet from the ground, and close to a stable and much frequented walk, shows that even birds of wild habits of life may be brought to repose trust in man by attention to their wants.

It is not often that one has an opportunity of seeing the Grasshopper Warbler, though its note is very familiar; for it is of such skulking habits and restless disposition that it seldom affords more than a momentary glimpse of itself as it creeps through the thick covert in which it delights. The author of the present volume furnishes some interesting notes on this species (pp. 101—103) from his own observation of it under favourable circumstances. His attempt to sketch the local migration of birds, as observed in the neighbourhood of a particular mid-land village, is doubtless applicable to many other parts of the country.

Nor is it only as an exponent of English bird-life that "an Oxford Tutor" comes before us. Vacation rambles in Switzerland

have afforded many opportunities, which have been turned to good account, for the quiet observation of some of the so-called rarer British birds in some of their continental haunts. Comparatively little has been published in English on the birds of Switzerland, and the chapter entitled "The Alps in September" will on this account, as well as for the information which it affords, be read with interest by every ornithologist.

In the succeeding chapter on "the Birds of Virgil" (one of the best in the book) we find ample proof that a knowledge of natural history is a material aid to the proper understanding and due appreciation of many passages in the works of this most observant Latin poet. The brief sketch given of his home and surroundings in early life (pp. 135—139) shows what opportunities he must have enjoyed for a study of nature, and how well these opportunities were subsequently turned to account:—

"The first sixteen years of his life were spent in his native country of Cisalpine Gaul, almost under the shadow of the Alps. His parents were "rustic," and he was brought up amongst the woods and rushy meads of Mantua and Cremona. At that time probably the great plain of the Po was still largely occupied by those dense forests the destruction of which is said to be the chief cause of the floods to which the river is liable. Much land also must have been still undrained and marshy; and we can still trace in the neighbourhood of Mantua the remains of those ancient lake dwellings which an ancient people had built there long before the Gauls (from whom the poet was perhaps descended) had taken possession of the plain. These woods and marshes, as well as the land which Roman settlers had tilled for vine or olive, must have been alive with birds in Virgil's day. There would be all the birds of the woods, the Pigeons, Owls, and Hawks; there would be Cranes and Storks at the period of their migrations, and all manner of waterfowl from the two rivers Po and Mincio, and from the Lacus Benacus (Lago di Garda), which is only about twenty miles distant. Later in life he was as much in Southern as in Northern Italy. That the first three Georgics were written, or at least thought out, on the lovely Bay of Naples is tolerably clear from lines at the end of the fourth Georgic. Here were all the sea-birds, and the wild-fowl that haunt the sea; here the summer migratory birds might land on their way from Africa. Here, from the sea and all its

varying life, the poet's mind would enrich itself with sights unknown to him in the flat lands of the Padus, and grow to understand more fully day by day the impressions—often dull ones—which Nature had made on the poets who had sung before him. He loved Campania and he loved Sicily; at Tarentum also he sojourned, probably visiting the friendly and jovial Horace. The hill-country of the peninsula and of the island that belongs to it, became a part of his poetical soul; and as he probably spent much of his time at his own Cisalpine farm, after he was restored to it through his patron's kindly influence, he must have been constantly moving among all the phases of Italian landscape—in the plain, on the hills, by the sea."

"An Oxford Tutor" criticises Virgil's knowledge of birds, of which some twenty different kinds are mentioned, and shows that, although here and there we find some delusions which were the common property of the age, his descriptions of their habits are for the most part accurate, and happily expressed. The classical scholar, as well as the naturalist, will discover in this chapter much sound criticism, and very pleasant reading.

As a tutor, the author considers that one of the most useful aids towards education is to direct attention to the study of natural objects, and his agreeable method of imparting information will bring many, we cannot doubt, to his own way of thinking.

A Bibliography of the Books relating to Fancy Pigeons. By T. B. COOMBE WILLIAMS, with Notes on their Rarity and Value. 8vo, pp. 20. Printed for the Author by West, Newman & Co., Hatton Garden. 1887.

ALTHOUGH nearly all the chief domestic races of Pigeons existed before the year 1600, no English writer on the subject appeared until John Ray, in 1678, in his edition of Willughby's 'Ornithology,' published the first English account of fancy Pigeons, and figured ten varieties of them.

Most English pigeon-books, and very many German and French ones, are of comparatively recent date. Mr. Coombe

Williams's list, although it cannot be said to be exhaustive, conveys a fair idea of the principal literature which exists relating to fancy Pigeons, and will be very useful. Roughly speaking, of the 140 titles, or thereabouts, which he quotes, English writers are credited with 58; German (including translations), 45; French, 21; Dutch, 3; Latin, 3; Italian, 5; Spanish, 1; and Arabic, 1.

Amongst English books on this subject one of the rarest is John Moore's 'Columbarium, or the Pigeon House; being an Introduction to a Natural History of Tame Pigeons.' 8vo, pp. xiv.—60. London, J. Wilford, 1735. It is an original work, and one to which subsequent writers on Fancy Pigeons have been much indebted. It is of such rarity that only half-a-dozen copies are known to exist, four of which are in the British Museum, a fifth in the library of Mr. Esquilant, and the sixth in the possession of Mr. Coombe Williams. In 1852 it was reprinted by Eaton, and in 1874 by Wade, in Philadelphia, the latest edition being that issued by Mr. Tegetmeier in 1879. Of these we are acquainted only with the last named, which seems unfortunately to be not very accurate, for according to Mr. Coombe Williams, although purporting to be a *literatim* reprint it contains more than fifty misprints! Wade's edition also is condemned as having no pretension to be a *literatim* reprint.

John Moore seems to have been somewhat of a celebrity in his day. Pope addressed a poem of ten verses to him, and he is mentioned by Swift in "a letter from a gentleman in the country to his friend in town." His death, which occurred in 1737, is recorded in 'The Gentleman's Magazine' for that year.

Amongst other rare books on this subject in the possession of Mr. Williams, is a curious volume in French by de Sacy, printed in 1805. It is entitled 'La Colombe,' and is translated from the Arabic, the Arabic and French texts being printed on opposite pages. This is stated to be "very scarce."

To judge by these and some other rarities which we notice in the Catalogue, Mr. Williams may be congratulated on his collection of "Pigeon books," and upon his useful list of them.

